TECHNICAL DATA AND GUARANTEES 01-049

The following preconditions and data apply to the plant:

Data

Output from boiler at 50% moisture content of fuel	10,0 MW
Flue gas temp. (from furnace)	1050°C
Flue gas temp. at chimney	225°C
Fuel	A mixture of shredded bark, chips and sawdust.
Proportion of sawdust	max. 50%
Moisture content - guaranteed value Moisture content - min.	55% 35% *
Bulk density approx.	300-450 kg/m^2
Furnace efficiency at 100% load Total efficiency at 100% load	96 % 84 % approx.
Spread sheet, losses:	
- Flue gas losses at 180°C - Unburnt in ash and slag - Radiation loss - Unburnt as CO	12 % approx. 1,5 % approx. 2,0 % approx. 0,5 % approx.
CO content at 100% load (24 h average)at 13% $CO_{2\ dry\ gas}$	70 mg/MJ fuel +/- 10%
NOx content(as NO_2)at 13% $CO_{2\ dry\ gas}$ and max.0,3% nitrogen in the fuel. (average/h)	70 mg/MJ fuel +/- 10%

* Lower moisture content damages the masonry in the furnace.

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Dust emission limit at 13% CO_2 dry gas after electro filter	65 mg/Nm^3
Availability during the warranty period, excl. planned stops.	98%

Electrical data
All electrical equipment is based on 380/220 V, three-phase, 50 Hz.
Motors are made by VEM.

Surface treatment	Painted

Machine Guarantee

The supplier undertakes for a period of 12 months that the parts of the plant are designed and will operate in accordance with their purpose and that the material is of good quality, with the exception of standardised mechanical components such as gear units and motors, where the guarantee conditions of the subcontractors will apply.

The guarantee period starts to run from the day when the equipment is started up.

Parts that are to be regarded as normal wear parts are not covered by the guarantee.

Process Guarantee

The performance, capacities and power requirement under the specified operating conditions are guaranteed for the plant. With reservation for the over all function of the equipment delivered by the customer and the function of the existing equipment to be used.

NOTE; Mechanical and Process guarantees are given under condition that KMW erect the equipment/or supervise the erection and take part in the commissioning of the plant.

Cont. Item 5

Technical data
The TRF pre-furnace is intended to burn bark, chips and sawdust with moisture content in the range 35-60%, with 50% moisture content as guarantee fuel.

The fuel charging, combustion and ash discharging of the pre-furnace are controlled fully automatically.

Control range with modulating operation between 100 and 30%

Boiler capacity at 50% moisture content of fuel:	10,0 MW approx.
CO_2 content, dry gases:	14,5 %
Grate area:	15,8 m^2
Grate load:	633 kW/m^2
Furnace volume:	25,5 m^3
Volume loading:	390 kW/m^3

T E C H N I C A L S P E C I F I C A T I O N 01-049

Item.7 HIGH PRESSURE STEAM BOILER

1Pce High pressure steam boiler make VHÅ, Höyrytys, Danstoker or equal.

Description
The boiler is a sectionized boiler with natural circulation consisting of 3 main components.

Radiation part:
The radiation part is a fully welded membrane wall with lengthwise and crosswise collectors. The outside of the radiation part will be fitted with heavy duty suspensions for placing on Support for boiler The entire radiation part is a membrane wall where all surfaces are water cooled, witch results in minimal use of concreting in the radiation part.

Convection part:
The convection part is designed for optimal cooling of the flue gasses with flue gas velocity calculated for a minimum of wear combined with the best possible self cleaning effect. The steam chest is dimensioned for a controlled evaporation of the steam resulting in "dry steam". To ensure the dry steam the steam outlet from the drum is equipped with a steam dryer.

Insulation:
The entire boiler will be insulated with mineral wool covered with galvanized steel plates and plastic coated steel plates. Further the boiler will be provided with a walking bridge for easy operation, service and maintenance.

Design data:

Fuel	Bark, chips
Combustion temperature	1.050°C
Max continuous heat output	10.000 kW
Steam output	23.250 kg/h
Design pressure	28 bar
Design temperature	255°C
Operation pressure	24,4 bar
Operation temperature	225°C